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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/352,612	07/13/1999	ARIE HENDRIK FRANS VAN VLIET	102222.01	2506

25944 7590 01/13/2003

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EXAMINER
KILKENNY, TODD J.

ART UNIT	PAPER NUMBER
1733	18

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-18

Office Action Summary	Application No.	Applicant(s)	
	09/352,612	VAN VLIET ET AL.	
	Examiner	Art Unit	
	Todd J. Kilkenny	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-23* is/are pending in the application.

4a) Of the above claim(s) *9-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 13-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 July 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *09/202,069* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. The restriction requirement is maintained and Claims 9-12 are still withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 4.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 16 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 5,458,711) in view of Kobiella (US 4,483,438) and Romanek (US 4,265,954). The rejection of record (see action dated 6-27-02) is maintained and hereby incorporated as reference.

4. Claims 1 – 5, 7, 13 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Vliet (CA 2,162,686, Newly Applied) in view of Kobiella (US 4,483,438), Romanek (US 4,265,954) and Saito (CA 1,026,522).

It is noted that CA 2,162,282 is an English language publication of an application belonging to the family of WO 94 26503, which was cited on the international search report submitted by applicant.

Van Vliet discloses a mesh mat made from plastic strips overlapped and welded together by electromagnetic radiation. The strips according to the invention are oriented to obtain a high strength plastic, wherein this orientation is achieved in a known manner by drawing (page 2, lines 5 – 18; page 3, lines 23 – page 4, line 18). Van Vliet teaches forming the mat (recognized as applicant's grid) by bonding the strips in at least one zone of overlap by electromagnetic radiation however, Van Vliet fails to suggest said bonded zone of overlap comprising at least two spatially separated bonded points or bonding lines.

Kobiella teaches a film strap weld made for overlapping thermoplastic films. The weld comprises a plurality of spaced fused regions. Kobiella recognizes that fusing across the entire width of the overlap results in reduced flexibility, wherein bonding at spaced regions enables the bond to retain more tensile strength. As seen in Figure 2, Kobiella illustrates a plurality of separated bonding lines in the zone of overlap.

Romanek teaches selective area fusion of non-woven fabrics containing thermoplastic fibers and bonding sheets of such fabrics together. Romanek recognizes sheets or webs bonded over their entire surface become too stiff for many applications (Column 1, lines 40 – 43). The patterned bonding areas as taught by Romanek are diagrammed in Figures 5 – 8. The bonding as taught by Romanek can be performed by exposing the regions to be fused to a source of heat energy in a variety of forms

including infrared, microwave, dielectric radiation, hot air, hot gas, steam, and the like (Column 4, lines 35 – 40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to weld the overlapped plastic strips of the mat of Van Vliet via electromagnetic radiation with separated bonding patterns (e.g. at least two spatially separated bonding points or bonding lines) as such are taught by Romanek and Kobiella to be employed in bonding overlapped plastic strips to produce more flexible bonded regions, maintaining more tensile strength of the strips at the zones of overlap.

Furthermore, Saito (CA 1,026,522) is cited as being an English language equivalent to DE 2,246,051, to which Van Vliet refers to as a suitable teaching for the manufacture of a mat (Van Vliet, page 3, lines 23 – 25). Saito provides a more positive suggestion for uniaxially stretching (recognized as drawing) the polymeric strips in the longitudinal direction, wherein the polymeric strips are superimposed to form a grid-like mat (Fig 1.) As disclosed by Saito, the stretching provides molecular orientation in the longitudinal direction, which acts to increase the strength of the strips in said longitudinal direction (page 6, lines 16 – 25).

It therefore would have also been obvious to one of ordinary skill in the art at the time of the invention that the mat of Van Vliet would be formed such that the strips would have a higher tensile strength in a lengthwise direction as compared to a tensile strength in a width direction in view of Van Vliet teaching to obtain a higher strength plastic strip by drawing said plastic strips wherein the mat is taught to be constructed with reference to the mat of Saito, wherein Saito also discloses a mat comprising

uniaxially stretched strips so that said strips and therein said mat have an increased strength in the longitudinal direction of the strips.

In regard to claim 2, Kobiella shows eight separated parallel bonding lines in Figure 2 and Romanek illustrates three parallel bonding lines in Figure 7.

In regard to claim 3, Romanek clearly illustrates bonding at the corners of the overlapping zones in Figures 5, 6, and 8. The bonding lines of Kobiella in Figure 2 are displayed on both edges of the overlap.

In regard to claims 4 and 5, Kobiella teaches the parallel bonding lines, or fused regions, to be 2.5 mm in width.

As to claim 6, it is unclear how welding by means of a laser (recognized as a method of making limitation) fails to define a product grid that is a materially different product from that suggested by Van Vliet.

As to claim 7, Romanek teaches a variety of bonding patterns and discloses that a large number of variations can be employed to provide a variety of different physical characteristics of stretch and strength. Romanek further suggests that light or severe bonding may be carried out, depending upon the product being made (Column 6, lines 46 – 58). In view of this teaching, one of ordinary skill in the art would readily recognize that the strength of the bond throughout the overlap can vary by the bonding pattern and therein one obvious variation would be to implement more bonding points or lines towards the center of the overlap as compared to the edges, which would result in the center of the overlap having a stronger bond.

As to claims 13 and 17, both secondary references illustrate bonding patterns comprising at least two spatially separated bonding lines (Figure 2 of Kobiella and Figure 7 of Romanek).

As to claims 14 and 18, again Van Vliet references Saito in regard to the construction of the mat. Referring to Fig 1 of Saito, a mat is disclosed formed of superimposed strips, wherein the zones of overlap within the mat are diagrammed to have dimensions defined by the width of each strip and therefore the surface area of the zone of overlap will approximately equal the product of each strip's width.

As to claims 15 and 16, Van Vliet in view of Saito teaches forming a mat having high tensile strength in the longitudinal direction because each strip of the mat has been drawn to orient the molecules in the longitudinal direction. Furthermore, Van Vliet suggests that the mesh mats have almost the same strength as the sum of the strengths of the strips located in one direction (page 4, lines 12 – 15.)

5. Claims 6 and 19 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Vliet (CA 2,162,686, Newly Applied) in view of Kobiella (US 4,483,438), Romanek (US 4,265,954) and Saito (CA 1,026,522, Newly Applied) as applied to claim 1 above, and further in view of Hoechst (FR 1,506,163, Newly Applied) and Foglia et al (US 3,560,291).

In regard to claim 6, as addressed above, it is unclear how the method limitation of employing a laser further defines the product grid of claim 6. In any event, in view of Van Vliet suggesting electromagnetic radiation, it would have been obvious to one of

ordinary skill in the art to employ a laser beam as the source of the radiation as laser beams are well known to be used to weld thermoplastic materials (e.g. foils, films, strips, or the like) as evidenced by Hoechst and Foglia et al. Furthermore, in view of the motivation of Kobiella and Romanek to provide spaced bonding patterns to the bonded overlaps of Van Vliet, one of ordinary skill would have been motivated to employ a laser beam as bonding with lasers enables a welding area or spot to be made of various sizes (Foglia et al., Col. 8, lines 28 – 43) and bonds to be formed in very short times (Foglia et al., Col. 1, lines 54 – 59).

As to claim 19, Van Vliet discloses that at least one layer of the strips comprise a surface layer having embedded therein absorption particles. This surface layer acts as a contact layer between overlapping strips so that upon subjecting the absorption particles to electromagnetic radiation, the overlapped strips are heated and welded to each other as the embedded particles provide the surface layer with a distinctly higher absorption capacity for the electromagnetic radiation compared to the plastic to which the strips are made. One of ordinary skill in the art would readily appreciate that Van Vliet suggesting the overlapping plastic strips have a lower absorption capacity in comparison to the surface layer comprising the absorption particles defines a plastic strip that is transparent to the electromagnetic radiation so that the radiation can travel through at least one plastic strip so as to be absorbed by the implemented surface layer, as is more clearly evidenced by the welding depiction of Foglia et al (see Figures).

As to claim 20, Van Vliet suggests that the embedded absorption particles can include particular soot particles, magnetite powder and/or metal powder (page, 6, lines 2 – 6). Hoechst further suggests providing absorption particles to polymeric materials being welded together by emission sources such as lasers, wherein the absorption particles are generally pigments, e.g. carbon black or iron oxide (see English Abstract).

In regard to claims 21 – 23, Van Vliet suggests providing the plastic strips with thin surface layers (10 to 40 micrometers) containing the absorption particles. Furthermore, Foglia et al teach in an alternative embodiment to interpose an absorbing layer in the form of film, between a pair of plastic films to be welded together. Foglia et al suggests the thickness of the interposed absorbing film is a fraction of the welding films, wherein the welding films are taught to have a thickness in the range of 0.5 to 10 or 20 mils (Foglia et al, Col. 2, lines 7 – 22; Col. 7, lines 65 – 71).

Response to Arguments

6. Applicant's arguments with respect to claims 1 – 7 and 13 - 23 have been considered but are moot in view of the new ground(s) of rejection.

The newly applied reference to Van Vliet (CA 2,162,686) discloses mesh mats suitable for soil stabilization, for example on slopes, wherein the mats comprise drawn plastic strips superimposed and welded together at their crossing points. Van Vliet further teaches at least one layer of the strips to comprise a surface layer having absorption particles embedded therein. This surface layer provides a contact layer

between the overlapping strips so that upon subjecting the absorption particles to electromagnetic radiation, the strips are heated and welded together.

As to the maintained rejection against claims 16 - 18, it is still the examiner's position that the secondary references to Kobiella and Romanek provide motivation to one of ordinary skill in the art to bond the grid strips of Yang using spaced bonding lines/points so as to provide a more flexible product (see Romanek, Column 1, lines 40 – 43) and to insure that the overlapping portions retain all their original strength in the unfused spaces of the overlap and so that the tension stress in the strip can be taken without interruption along the entire length in the unfused spaces (Kobiella; Column 3, line 67 – Column 4, line 12). Furthermore, the primary teaching of Yang discloses forming a grid from superimposed strips wherein the strips have been fully stretched in their lengthwise direction to provide each strip with a high tensile strength, wherein Yang recognizes that stretching each strip provides the advantage of a grid that has uniform tensile strength throughout (Column 4, lines 29 – 54).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is **(703) 305-6386**. The examiner can normally be reached on Mon - Fri (9 - 5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Todd J. Kilkenny

TJK
January 3, 2003

JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300